The works of brett nortje 04032016

Gene gardens.

> Originally Posted
>
> by **http://civilization.wikia.com/wiki/Gene_Garden_(CivBE)**
> *The first colonial “gene gardens” were created to craft and supply therapeutic DNA transgenes – whether integrated in the genome or as an external episome – for use in somatic and germline approaches. Using recombinant viruses or “naked” DNA, physicians were able to cure or limit a number of genetic diseases still prevalent in colonists from Old Earth, such as Huntington’s, Parkinson’s, Alzheimer’s, lymphocytic leukemia, choroideremia, and several kinds of immunodeficiency, effectively eliminating these from the population. In a number of instances the gene gardens also became the site of research in genetic engineering and genomic cultivation, both fields gaining ever more importance in colonial efforts to adapt their citizenry to this planet. In time, the techniques developed in the gene gardens were used for adaptive human mutations, initially minor ones that involved metabolic adjustments permitting ingestion of native flora and lessening dependence on traditional agriculture. Eventually, the gene gardens became an essential component in the biotech infrastructure of many settlements, contributing to food production, biomedicine, biorobotics, recycling, and even biofuel production. But their role in combating illness remained significant, most recently in the realms of applied immunology, prenatal genetic diagnosis and pharmagenomics.*

This sort of thing would be where we modify the d.n.a. code of any living thing. we could maybe use genetics or the study of genetics to make someone alter their physiology naturally, or, breed a super race. the only problem with this is what will they do? will they run faster and lift more? we have no need for that! will they compile information faster? there is no problem with the rates of science at the moment, but, let's say we want to make people more intelligent - what would we do? breeding them would take too long, so, i am hoping for something orally ingested, not surgery or even a painful injection!

If we want to make someone more intelligent, we need to boost the responses of the brain. this i have done by adding neuro transmitters to the brain, to allow for faster information relays, but let's think of other things we could improve?

> Originally Posted by **https://en.wikipedia.org/wiki/Memory**
> *In psychology, **memory** is the process in which information is encoded, stored, and retrieved. Encoding allows information from the outside world to be sensed in the form of chemical and physical stimuli. In the first stage the information must be changed so that it may be put into the encoding process. Storage is the second memory stage or process. This entails that information is maintained over short periods of time. Finally the third*

> *process is the retrieval of information that has been stored. Such information must be located and returned to the consciousness. Some retrieval attempts may be effortless due to the type of information, and other attempts to remember stored information may be more demanding for various reasons.From an information processing perspective there are three main stages in the formation and retrieval of memory:*
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> - *Encoding or registration: receiving, processing and combining of received information*
> - *Storage: creation of a permanent record of the encoded information in short term or long term memory*
> - *Retrieval, recall or recollection: calling back the stored information in response to some cue for use in a process or activity*
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>
> From this point we can see that encoding can give you a headache, storage will replace other storage depending on the environment that it was received in - considering pleasure better than 'value' - and retrieval will be trying to replicate the activity linked to a certain 'input' to remember it.
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> Originally Posted by **https://en.wikipedia.org/wiki/Memory#Short-term**
> *Short-term memory is supported by transient patterns of neuronal communication, dependent on regions of the frontal lobe (especially dorsolateralprefrontal cortex) and the parietal lobe. Long-term memory, on the other hand, is maintained by more stable and permanent changes in neural connections widely spread throughout the brain.*
> *The hippocampus is essential (for learning new information) to the consolidation of information from short-term to long-term memory, although it does not seem to store information itself. Without the hippocampus, new memories are unable to be stored into long-term memory, as learned from patient Henry Molaison after removal of both his hippocampi,[8] and there will be a very short attention span. Furthermore, it may be involved in changing neural connections for a period of three months or more after the initial learning.Research has suggested that long-term memory storage in humans may be maintained by DNA methylation,[9] or prions.[10]*

Too boost short term memory, we need to focus on this prefrontal lobe. this can be improved by observing that this prefrontal cortex will have to have it's fluency boosted for these purposes. if we were to observe that the brain needs fuels to function, we can also say that all fuels need to be balanced, as otherwise the brain might get 'airy.'

So, if we do not need to add fuel to the brain, maybe we could modify the brain? this could be done by adding blood vessels. adding blood vessels means we need to observe what happens when we cut ourselves;

Fibroblasts are the answer! these repair the blood vessels by rebuilding them, so, we could use these to build whole new ones from the heart to the rest of the body. but, how do we do this?

I suggest that the fibroblasts cover the existing blood vessels, and then they will 'copy' them. this is because the environment they are in will be the major influence of what they do, yes? so, the environment will be the blood vessel and tissue, i think. this means the tissue and the blood vessels will give way to more blood vessels out of tissue surrounding them.

Phew, that was easy, how do we modify the brain to get these in?

To mark a place for these fibroblasts to 'stop' and 'build on' we need to take the right brain tissue from a outside influence, or, replicate the tissue so that it is attracted to the 'area' so that it will identify it and then link to it.

Molecular forge.

> Originally Posted
> by **http://civilization.wikia.com/wiki/Molecular_Forge_(CivBE)**
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> *There are certain materials that have to be created molecule-by-molecule in strictly controlled conditions, or whose constituent compounds are complex enough that special molecular crafting techniques are required. These are made in a variety of facilities which are specially isolated from external contaminants and stressors, so that slow-growing crystalline materials can be made with the greatest possible purity as quickly as is expedient. The most sophisticated forges try to isolate the growth chambers from seismic shock, stellar radiation, and even the subtle electromagnetic distortions created by the nervous systems of living creatures. The imperfections found in material created in these high-isolation chambers are usually the result of quantum fluctuations, and thus of high interest to researchers as well as material engineers.*

This is a gaming concept that might be realized one day, so why not try to make a little bit of head way now?

From what i can tell, it is there to make as close to perfect molecules as possible. this would be where they can also build new cells out of molecules, obviously for medical and fuel reasons mainly? but, then there are building materials like graphene that came about by experiments like these.

So, as a guide to what will hold and what will not bond, i suggest that it is easier to bond to gases then liquids then solids. the good news is that most liquids take on a hard form under the right conditions, so we could make building materials out of something as convenient as salt water or something?

But, before we can experiment, we need a facility to do it in. this facility should have medium sized vats of all the chemicals they will be using, and, of course, lots of little beakers to test their experiments before production of them.

Mass producing them will be done by observing that some of the 'stuff' is

> thicker than the rest, so will go to the top, while the opposite is also true. i suggest for mass production, we use minute blood vessel style pipes to mix them. these pipes can be produced by using nano bots to build them, and then they will mix quickly.

Nano bot cell division.

This would be where we stick nano bots into a container, and have them divide naturally, leading to other nano bots coming about naturally. i think the key factors are heat, fuel and hormones.

So, we would want to have make the bots we need, as estrogen and testosterone to the bots and then make sure they are warm enough to procreate.

I suppose we could sprinkle some of these hormones onto them to make them divide sexually or send a division signal from inside the chamber, yes? lets work with the 'signal' now?

If we were to just throw all the chemicals into a container, we could make them bond with the right signal. this fuel for them to bond to which ever other chemical they are told to should come from the rest of the chemicals in the container. getting them to bond can be done through 'electro therapy' where they alter the orbital activity so as to attract one chemical to another.

This requires a few electromagnets. if we were to have one giving off a signal to 'look for x,' and another the signal to 'look for a' eventually they will find each other on a chemical level.

Maybe we could run a 'pipe' through the chamber and then have minute holes in it? these pipes could transport the mixture out of the container, and then collect the bots in a different place.

The charge should be for all the chemicals to mix, so it would be a hot charge or whatever, simple science. then, you use lasers to cut them down to size.

New stock exchange.

I know today we have many stock exchanges to buy and sell shares in companies. we can also do this from home or on the road, but, how much will the investor lose due to 'lack of speed?' i mean, it takes time to see something and tell your broker, and it takes time for your broker to respond to your wishes.

For this reason, we need a new stock exchange client for home computers. to make sure it works properly, it must be linked to the bank and broker or exchange itself. it should work like currency trading software maybe? the thing is, there are vastly more companies on an index than there are currencies, yes?

So, we need to make a network out of the bank's terminal, our account and the market. this requires a internet connection that connects to a 'hub' or something than let's everyone communicate quickly.

Transcendental math.

> Originally Posted by **http://civilization.wikia.com/wiki/Transcendental_Math_(CivBE)**
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> *Some years ago, colonial mathematicians integrated transcendental numbers (non-algebraic, irrational numbers) and transcendental functions (those that do not satisfy a polynomial equation) into what they termed "transcendental math." Although the concept was pioneered on Old Earth, after devising this "new" math, these scholars used it to create dimensional analysis whereby non-algebraic operations could be applied to a non-three dimensional equation to give meaningful results. In the process of such transcendental equations, transcendental numbers could be used as non-constant values in an algebraically closed field. While understood fully by only a handful of the most gifted mathematicians on this world, transcendental math led to advances in a number of theoretical realms, not the least the discovery of various pervasive, supra-dimensional messages. Currently using Liouville numbers, efforts at decoding these transcendental functions will no doubt take many more years.*

So, these numbers are non constant, so, they change or are 'polymorphic,' yes? this means that they are basically [x] equations, where they are not the answer, but rather a value that can be changed due to deviations in the equation itself.

This also appears to be a mix between algebra and other common engineering and science symbols, as they are non algebraic. if we want to work with these, then obviously the answer is to convert them into science rather than convert science into algebra.

Maybe finding things like 'words' in the formula would result in various 'maths' itself? let's say that the words 'cat' and 'rat' are used? this would mean that each letter inside the value are found to be similar at 'at' in both of them? just a thought.

If we want to get non maths symbols into maths, what is a non maths symbol? it is obviously science, so, why not turn the symbol into the value and then insert it?

Bionics.

This is like simulating biological functions and parts to work inside machines. we have something vaguely similar to this already, with the chemical computer. but, this is like sticking nanobots inside a computer ~ i read that these computers use neurons?

So, to make electronic components that simulate the 'living things,' would not be hard. we know enough about circuits ans switches and of course the biology of people to find a common ground between them, yes? i suggest we build a switch for a light bulb that goes on and off under certain circumstances - say when there is someone in the room? this could be done by having a 'nerve' or hair feel for motion, but, these already exist with electronics, yes? maybe something more complicated is in order?

How about a radio that tunes to a certain station when we want it to? this would be where we have a diaphragm that senses octaves, like has been shown by glass breaking under certain pitches? this could be where the stations syllables are recognized by the 'nerve,' and then relayed to the 'tuner.' this could be done by having a hair on the 'radio' where the hair moves or recognizes certain 'shapes of words,' where the words also have a length to the 'sound' of them, yes?

Besides that, we could use neurons to process things, but they would have to be communicating with the 'machine.' this could be done by 'fusing' the hardware with the 'biomass.' this could be done by studying 'cybernetics,' yes? while i am totally opposed to cybernetics for people, i suppose for machines it could work.

Now, to fuse the two together, we merely need to find a way to power the 'cells.' this could be done with oxygen only, as we could find a way to make it just use oxygen, which is plentiful. so the fuels - oxygen and others - will go into the cell, and then the cell can receive and transmit signals.

Of course, getting them to 'communicate' would require 'understanding.' this could be done with impulses, which require nerves. the nerves could be set to the circuit, so, when you 'switch it on' it sends a signal to the nerves, which sends signals to its 'biomass.' this would require that the cells get a little bit 'electrocuted,' at a manageable scale, in tiny amounts, and then 'react' by moving around to a pattern or natural response.

But, how do we program the responses? it all depends which type of biomass you are using. if you are using plants, then the reactions will likely be sensitive to sunlight and slow to make changes, as they make very little changes other than grow, yes?

On the other hand, if you use human cells, you could make the cells carry a signal to the next cell. it is much better to work with nerves that relay signals quickly, but even that is slower than electronics.

So, we should use the much underestimated nervous system as a 'mother board.' this will use nerves and relay things around quickly, especially if we observe our own ones. this will require muscles too! the muscles are the things that react, and the cells are the things keeping them nourished, of course.

Now, if we want to make the neurons affect something, then they need to have a nervous system running concurrently with the electronics. then, the muscles can write and operate the 'system.'

So, we need a communication line between the living thing and the motherboard. this could be done by joining them together through making a connection by using the motherboard as the primary interface, and then linking them together.